goal. It also made hospitals more effective in showing their strengths and presenting themselves to the public and purchasers, and even in adopting new practices, but there is no evidence of benefit in terms of clinical outcomes. Indeed, failure to prove a causal link between compliance with process standards and improved clinical results has dogged the development of health service accreditation throughout the world; but if that argues against accreditation it also argues against clinical audit and continuing education.

The third objective was to test the principles of accreditation in the United Kingdom. Outside specialty training (where the word was derived to describe the recognition of suitable training posts by the American College of Surgeons), neither the term nor the principles had been applied to health services in Britain. Until the early 1990s there had been consistent opposition from health ministers on the grounds that it would be too prescriptive and expensive and that it undermined the right of managers to manage—despite the support it received from several national bodies before *Working for Patients*, which excluded it from government policy.⁷ Although this community hospital programme was championed by provider units before the purchaser-provider split, its potential value to commissioners in purchasing decisions and in quality monitoring has been an important factor in its development. Indeed, the growth of this programme and of others, both generic (such as the King's Fund organisational audit programme) and specialty based (such as Clinical Pathology Accreditation, UK), shows a perceived need and a willing market to adopt it. Given that such programmes offer an independent mechanism for monitoring, they are consistent with current government policy to deregulate other sectors, such as voluntary and private health care.

Conclusion

Given the response so far, health service accreditation is unlikely to disappear. More probably, the coming debate will be on how many such systems are appropriate, how they will be validated, and whether they should themselves be regulated nationally. When the University of Bath completes its national review (commissioned by the Department of Health) of current programmes in the NHS these issues may become more prominent.

In the meantime, the market speaks for itself. The original community hospital programme is now being offered throughout the United Kingdom and is being emulated in South Africa as a pilot in secondary care.^{8,9} This, with other accreditation systems, offers a development tool to providers, an assessment tool to purchasers, and a visible measure of achievement to the public.

- 1 Shaw CD, Brooks TE. Health service accreditation in the UK. *Qual Assur in Health Care* 1991;3:133-40.
- 2 Brooks TE, Pitt C. King's Fund organisational audit programme. *The quality question: a report of the first year of the organisational audit project*. London: King's Fund, 1990.
- 3 Pennington GW. Royal College of Pathologists' accreditation pilot study: a year later. *J Pathol* 1991;44:172.
- 4 South Western Regional Health Authority. *Community hospitals in the South West: a strategic statement*. Bristol: SWRHA, 1989.
- 5 Shaw CD, Hurst M, Stone S. *Towards good practice in small hospitals*. Birmingham: National Association of Health Authorities, 1988.
- 6 Hayes J, Scrivens E. *An evaluation of the accreditation programme for community hospitals*. Bristol: Hospital Accreditation Programme, 1993.
- 7 Department of Health. *Working for patients*. London: HMSO, 1989. (Cmd 555.)
- 8 Whittaker S, Bruwer A, Taljaard JFF, Shaw CD, Green D, Steyn H, et al. The South African pilot hospital accreditation programme. I. Process. *S Afr Med J* 1994;84:130-2.
- 9 Whittaker S, Shaw CD, Bruwer A, Green D, Taljaard JFF, Skibbe A. The South African pilot hospital accreditation programme. II. Development of standards. *S Afr Med J* 1994;84:193-4.

(Accepted 7 February 1995)

Glycated haemoglobin and metabolic control of diabetes mellitus: external versus locally established clinical targets for primary care

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Abstract

Objectives—To examine current targets for glycated haemoglobin as a marker for metabolic control in diabetes mellitus in relation to datasets from several areas, and to consider whether target setting could be improved.

Design—Data collected from enhanced care records of general practices for a representative community based sample of people with diabetes.

Setting and subjects—3022 people with diabetes on the lists of 37 general practices (total list size 222 550) in South Glamorgan in 1992; samples of glycated haemoglobin had been processed at two laboratories with different methodologies and reference ranges.

Main outcome measures—Last glycated haemoglobin level measured in subjects for 1992 and published data from other studies considered in relation to existing goals and standards for the metabolic control of diabetes.

Results—An ascertainment rate for people with diabetes of 1.36% was obtained. The rate of data capture for haemoglobin A1 was 75.7%, and the mean level for study samples was 10.5% at one laboratory and 10.0% at the other (similar values to those of comparable studies). These mean levels of haemoglobin A1 in representative populations of people with diabetes are poor or very poor according

to published standards, including those of the British Diabetic Association. These findings are set in the context of the psychology of goal setting and performance in complex clinical situations.

Conclusion—Targets for clinical care that are set in the absence of normative data and local feasibility assessments should be treated with caution. Targets are more likely to enhance health care if target setters recognise the importance of psychological aspects of goal setting and motivation.

Introduction

A plethora of charters stating explicit performance targets for a wide variety of services has appeared recently. This preoccupation is reflected in health care by the precise targets set by the *Health of the Nation*¹ and the growing number of guidelines for managing diseases that contain specific goals and targets.^{2,3} Few have challenged the assumption that setting targets for health care workers will result in long term benefit for patients, and the uncertainties associated with clinical standards apply equally to clinical targets.^{4,5} Despite the present climate of multidisciplinary cooperation, few target setters have drawn on the experience of other disciplines. Theory and experience from the field of psychology, for example, suggest that the relation between goal setting and performance in complex

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BMJ 1995;310:784-8

settings is not a simple one. Indeed, setting goals may have a negative effect on performance for tasks that are intrinsically interesting and require complex strategies for achieving success.⁶⁻⁹ Moreover, some target setters may be operating counter to the spirit of their own disciplines. Patient centred principles regarding clinicians motivating their patients are often ignored in the relationship between target setter and clinician; the first some clinicians hear about clinical targets is when they receive uninvited, printed instructions through the post telling them what to do.

Two large, well publicised trials have shown that fewer microvascular complications occur with better metabolic control in people with insulin dependent diabetes.^{10,11} While poor metabolic control remains one of several important risk factors for the complications of diabetes,^{12,13} these trials have strengthened the conviction that the burden of morbidity and mortality can be lightened by improved care. The outcome of a large trial assessing the relative contribution of metabolic control to complications in people with non-insulin dependent diabetes is awaited.¹⁴ It seems reasonable, however, to assume that achieving better glycaemic control is also worth while in this group as the mechanism of microvascular damage is thought to be the same as in people with insulin dependent diabetes.¹⁵ The question of optimal metabolic control is therefore now in sharp focus.^{15,16}

Measurement of glycated haemoglobin is the most widely used method of evaluating long term glycaemic control.¹⁷ Doctors' awareness of this measure has been shown to be associated with better glycaemic control for their patients,¹⁸ and patients are invited to evaluate their own achievements in controlling their diabetes in terms of this measure.¹⁹

Measuring glycated haemoglobin, the "gold standard" method for assessing glycaemic control, is therefore fixed firmly in the sights of the clinical target setters. In its advice to general practitioners, the British Diabetic Association offers targets for haemoglobin A1 and A1_c with the proviso that they may have to be adjusted according to the variation in reference ranges of different assays (see table I).³ The Royal College of General Practitioners states that a level of haemoglobin A1 of less than 9% should be the goal for those with insulin dependent diabetes and those with non-insulin dependent diabetes who are aged under 65.²⁰ The St Vincent Declaration's guidelines for children and adolescents with diabetes state that glycated haemoglobin should be "around the upper normal range, not lower than the mean of normal range (indicating hypoglycaemia) and not more than 1-2% above normal range."²¹ The American Diabetic Association has recently abandoned its precise categories of control ("good," "acceptable," and "poor") in favour of this more general approach (see table II).¹⁹

TABLE I—Target percentages for ranges of haemoglobin A1 and A1_c recommended by British Diabetic Association³ in assessment of metabolic control in people with diabetes

	Good	Acceptable	Poor	Very poor
Haemoglobin A1 (normal 5.0-7.5)	<7.5	7.5-8.7	8.8-10	>10
Haemoglobin A1 _c (normal 4.0-6.0)	<6.0	6.0-7.0	7.1-8.1	>8.0

TABLE II—Target percentages for levels of haemoglobin A1_c recommended by American Diabetic Association¹⁹ in assessment of metabolic control in people with diabetes

	Non-diabetic	Goal	Action suggested*
Haemoglobin A1 _c †	<6	<7	>8

*Depends on patient's circumstances.

†Referred to a non-diabetic range of 4.0-6.0% (mean 5.0%, SD 0.5%).

Some target setters try to avoid the pitfalls of absolute values and categorise control according to standard deviations of haemoglobin A1 values around the non-diabetic mean. A value less than two standard deviations above the non-diabetic mean has been classified as "good control," less than four "acceptable control," and more than four "poor control."²² "Good control" has recently been redefined, without explanation, to include "three standard deviations above the upper limit of mean value for the reference range."¹³

We evaluated these published targets by comparing them with real data derived from a large group of patients with diabetes and with other published datasets. In the light of this and the experiences of our programme of audit enhanced care for people with diabetes in South Glamorgan, we considered possible improvements that could be made to the process of setting clinical targets.

Method

The development of our district-wide database for the audited care of people with diabetes since 1988 has been described elsewhere.²³ Important aspects of the database are that it (a) is district-wide and represents one of the largest British datasets of community based care of people with diabetes, (b) incorporates a cycle of ongoing annual audit in parallel with continuing education, and (c) has shown a year on year improvement in the recording of process and outcome measures to levels higher than in most comparable studies.

The dataset presented here included all people with diabetes on the lists of the 37 participating general practices in 1992 irrespective of whether their care was largely hospital based or general practice based. One haemoglobin A1 level per person with diabetes (the specimen taken nearest to the annual review) is included in the data.

Assays were performed at two hospitals. Laboratory 1 used agar gel electrophoresis (Corning, normal reference range 5.7%-8%) and laboratory 2 used cation exchange chromatography (Helena, 5.5%-7.7%). We compared our data in South Glamorgan and datasets from other areas to published targets for glycated haemoglobin.

Results

By the end of 1992, 51 of a possible 74 (69%) practices in South Glamorgan were participating in the programme, and 37 of these practices completed an annual audit. This represented a combined list size of 222 550 patients, which included 749 people with insulin dependent diabetes and 2273 people with non-insulin dependent diabetes. An ascertainment rate for diabetes of 1.36% was therefore obtained.

In the 1992 annual audit, levels of haemoglobin A1 were recorded in 446 people with insulin dependent diabetes and 1789 people with non-insulin dependent diabetes. When calculating data capture, we excluded eighty subjects in the paediatric age group (all with insulin dependent diabetes) as their metabolic control was managed almost exclusively in hospital; the capture rates were therefore 65.7% for people with insulin dependent diabetes and 78.7% for those with non-insulin dependent diabetes (75.7% overall).

Table III gives the overall mean level of haemoglobin A1 and the mean levels for each type of diabetes obtained at each of the two laboratories in South Glamorgan. Figure 1 illustrates the skewed distribution of haemoglobin A1 levels obtained at each laboratory. Figure 2 gives the mean level of haemoglobin A1 for these two South Glamorgan datasets and for four other British studies²⁴⁻²⁷ together with the

TABLE III—Mean (SD) percentages for haemoglobin A1 and number of samples by laboratory and type of diabetes

	Laboratory 1		Laboratory 2	
	Haemoglobin A1	No of samples	Haemoglobin A1	No of samples
Insulin dependent diabetes	11.4 (2.7)	283	10.9 (2.3)	163
Non-insulin dependent diabetes	10.3 (2.5)	1043	9.8 (2.3)	746
Total	10.5 (2.6)	1326	10.0 (2.3)	909

FIG 1—Distribution of levels of haemoglobin A1 obtained at two laboratories in South Glamorgan. Laboratory 1, with samples from 1326 patients, had mean of 10.5% (upper limit of laboratory's reference range 8%); laboratory 2, with samples from 909 patients, had mean of 10.0% (7.7%)

normal reference range for the British Diabetic Association's targets and the normal reference ranges quoted for each assay used. South Glamorgan's laboratory 2 was the only laboratory to use cation exchange chromatography—the rest used agar gel electrophoresis.

The mean level of haemoglobin A1 quoted for the Ipswich study is for a cross section of people with diabetes three years after a changeover to an integrated system of diabetes care based in a centre for diabetes.²⁷ The data from Oxford are for people with diabetes aged 60 and over,²⁶ and the data from Trowbridge were obtained from a community-wide screening programme.²⁵ The approach in Royal Tunbridge Wells was cross sectional and general practice based.²⁴

In the Ipswich study the normal reference range was obtained by calculating two standard deviations around a mean for 150 subjects; it is not stated how these subjects were selected. The normal range used for South Glamorgan's laboratory 1 is based on the frequency distribution of values obtained from 61 laboratory workers who were not known to have diabetes. Since values did not follow a normal distribution, the use of standard deviations about the mean to calculate this normal range was thought inappropriate. (Targets similarly based on standard deviations about this mean may be open to question on grounds of statistical validity. Elsewhere, the use of laboratory normal reference ranges as quoted for the assays used are generally still derived by calculating two standard deviations about a non-diabetic mean.)

Figure 2 illustrates the well established methodological and statistical difficulties inherent in making accurate and meaningful comparisons of data on

haemoglobin A1.^{28 29} In each study the mean level of haemoglobin A1 was well above its local normal range, however this was calculated, and a long way from "acceptable" according to published targets. It is apparent that, even if haemoglobin A1 levels could be manipulated somehow to take into account different methodologies and reference ranges, at least half of all patients in these large British audits of diabetic care would still have metabolic control that was classified as poor or very poor according to the criteria of the British Diabetic Association and others. Roughly the same proportion would still be rated as having poor metabolic control if four standard deviations above the non-diabetic mean was taken as the cut off point for having acceptable control.

The highly selected and motivated group of young diabetic volunteers in the tightly controlled arm of the diabetes control and complications trial, supported by extensive education programmes and monitoring in a research milieu, achieved a mean level of haemoglobin A1_c of around 7%.¹⁰ This value lies on the border of the British Diabetic Association's categories of acceptable and poor metabolic control (the non-diabetic mean for the diabetes control and complications trial assay and the British Diabetic Association's reference range are almost exactly the same). Fewer than 5% of patients in this sophisticated trial maintained an average level of glycated haemoglobin that the British Diabetic Association would classify as good.

In no large scale clinical study (community based or experimental) did investigators come close to achieving metabolic control which would be considered adequate according to published targets.

Discussion

The findings of this study suggest that existing targets for the metabolic control of people with diabetes mellitus, when viewed in the light of normative data, are impractical for those involved in the day to day management of patients. Is there a better way of setting targets than the prevailing "top down" approach, in which national expert bodies may set targets that ignore the realities and skills of clinicians in many different and complex settings? Are locally

FIG 2—Mean level of haemoglobin A1 for six datasets and normal ranges for each dataset compared with reference range for British Diabetic Association's targets

established targets perhaps more valuable than national targets?

GOALS AND MOTIVATION

Goal setting is essentially a strategy for enhancing performance, and several considerations about goals and human motivation are relevant to the process of setting clinical targets. Firstly, at the best of times unrealistic goals will produce repeated failure that can eventually weaken motivation,⁶ and setting very difficult goals for people who are already under great pressure will simply worsen discomfort rather than improve performance.⁷ It is an established principle in the field of individual behaviour change that goals are more likely to be achieved if they are short range and attainable and if the easiest ones are attempted first. Research into "self efficacy" suggests that the inclination to engage in challenging activities is affected by an individual's beliefs about what he or she can do.⁸ Seemingly impossible goals may cause people to perceive the situation as uncontrollable, and their performance suffers. This takes its toll on what they believe they are capable of. Thus, those wishing to motivate others need to pay attention to raising people's beliefs in their competence, and they should try to structure situations in ways that are likely to bring success.

Secondly, expectancy theory suggests that people are more likely to do things if they believe in their value and that a given amount of effort will achieve them.³⁰ Thirdly, neither goals alone nor feedback alone motivates performance optimally; both ingredients are necessary.³¹

Behaviourists, often interested in short term results within narrow parameters, are inclined to a "black box" view of human motivation and see activity as an outcome of conditioning; setting targets is an attempt to condition behaviour. External goals can be counter-productive, however, when applied to people doing intrinsically interesting activities,⁶⁻⁹ who may focus their energy on achieving goals instead of using initiative to focus on the aspects of excellence that are most appropriate to each unique, complex situation. There is a risk of making people dependent on external inducements, and the perceived "locus of causality" may change from internal to external.³² Deci and Ryan believe that the "self" is not simply the outcome of social evaluations and external pressures.⁹ Human beings, by nature, seek out optimal challenges and try to master and integrate new experiences. "Competence," "autonomy," and "relatedness" are innate psychological needs, and addressing these needs will promote a person's identification with the underlying value of the activity and acceptance of it as his or her own. This kind of behaviour change is called integrated regulation and will strike a chord with the clinicians who are interested in the self empowerment of their patients as a step towards lasting improvements in behaviour across a wide range of situations in life.

Indeed, many well researched principles governing the interaction between a clinician and a patient are relevant also to the relationship between goal setters and clinicians. Exploring the patient's perspective lies at the heart of the discipline of general practice.³³ Studies of addictions also suggest that telling people what they should achieve may entrench resistance and undermine motivation, especially when the advice is uninvited as it may cause resentment and damage rapport.³⁴ Negotiation about therapeutic goals³⁵ and real valuing of patients' views³⁶ seems to improve outcomes.

THE SOUTH GLAMORGAN EXPERIENCE

While it is too soon to be able to evaluate the South Glamorgan programme of audit enhanced care for

Key messages

- Existing targets for glycated haemoglobin in the metabolic control of people with diabetes are unrealistic and therefore unhelpful
- Prevailing "top down" approaches to clinical target setting ignore principles of patient centred care and proper consideration of goals as motivational tools
- Effective targets are like to be attainable in the short term, believed in, negotiated, and flexible
- Those who are expected to achieve the targets should undergo the necessary skills development, believe in their capabilities, be properly supported, and receive feedback

people with diabetes in relation to improved outcomes for patients, the programme continues to grow and has shown an annual improvement in the recording of measures of the processes of care and the active participation of primary care teams.²³ We believe that part of this success lies in attempts to operate within the spirit of appropriate goal setting and human motivation. In the programme, any explicit and implied targets for care are based on past performance and the group performance of peers. The possibility of achieving targets is therefore firmly established, and until recently the group had little awareness of the external targets promulgated by the St Vincent Declaration and its antecedents.

Clinicians from each general practice receive a confidential report enabling them to compare their year to year progress in caring for people with diabetes; they then attend a meeting where their achievements are fed back in a way that facilitates confidential comparison of the performance of local peers. Continuing medical and nursing education is integral, so that skills are enhanced and people feel more able to do what is expected of them.

The programme germinated from within general practice and involves hospital specialists, academics, and all members of the primary care team in a cooperative style of interaction. The process of audit, feedback, and continuing education tries to be responsive to the changing needs and new ideas of all the participants. We are aware of a developing sense of ownership of the data and any targets that are generated.

In the light of these data, the considerations about goals in human motivation, and the impressions gained from our practical experiences, we suggest that the following assertions are important for potential target setters:

- (1) People are more likely to attain targets if they believe in the benefits of achieving them and perceive themselves as competent to achieve them.
- (2) Just as clinicians should avoid dictating to patients, so should target setters negotiate locally with those who are expected to achieve the targets.
- (3) Targets that are attainable are likely to be based on normative data derived from comparable care settings.
- (4) The appropriate use of targets incorporates important elements of personal development and feedback.
- (5) Since locally established targets are most likely to be congruent with these principles, they will probably be more effective motivating tools than those generated externally.

Funding in the early years of the South Glamorgan audit enhanced programme of care for people with diabetes mellitus

was by the Primary Health Care Development Fund, the Welsh Scheme for Health and Social Research, and Novo Nordisk. The South Glamorgan Medical Audit Advisory Group and the region's family health services authority have funded the project since 1992, and the former continues to recruit practices to the scheme and organise opportunities for practical continuing education for each audit meeting on diabetes. The participating doctors, nurses, dieticians, chiropodists, and others with a specialist interest in diabetes determine the direction of the programme and keep it flourishing through their enthusiasm and their administrative, educational, and clinical efforts. The practice nurses of South Glamorgan deserve special mention for their dedicated care and follow up of patients.

- 1 Secretary of State for Health. *Health of the nation: a strategy for health in England*. London: HMSO, 1992. (Cm 1986.)
- 2 Subcommittee of WHO/ISH Mild Hypertension Liaison Committee. Summary of 1993 World Health Organisation-International Society of Hypertension guidelines for the management of mild hypertension. *BMJ* 1993;307:1542-9.
- 3 British Diabetic Association. *Recommendations for the management of diabetes in primary care*. London: BDA, 1993.
- 4 Grol R. Development of guidelines for general practice care. *Br J Gen Pract* 1993;43:146-51.
- 5 Farmer A. Setting up consensus standards for the care of patients in general practice. *Br J Gen Pract* 1991;41:135-6.
- 6 Bandura A. Self-regulation of motivation through anticipatory and self-reactive mechanisms. *Nebr Symp Motiv* 1990;38:69-164.
- 7 Wood RE, Mento AJ, Locke EA. Task complexity as a moderator of goal effects: a meta-analysis. *J Appl Psychol* 1987;72:416-25.
- 8 Earley PC, Connolly T, Ekegren G. Goals, strategy development, and task performance: some limits on the efficacy of goal setting. *J Appl Psychol* 1989;74:24-33.
- 9 Deci EL, Ryan RM. A motivational approach to self: integration in personality. *Nebr Symp Motiv* 1990;38:237-88.
- 10 Diabetes Control and Complications Trial Research Group. The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl J Med* 1993;329:977-86.
- 11 Reichard P, Nilsson BY, Rosenqvist U. The effect of long term intensified insulin treatment on the development of microvascular complications of diabetes mellitus. *N Engl J Med* 1993;329:304-9.
- 12 Panzram G. Mortality and survival in type 2 (non-insulin-dependent) diabetes mellitus. *Diabetologia* 1987;30:123-31.
- 13 Alberti KGMM, Gries FA, Jervell J, Krans HJM. A desktop guide for the management of non-insulin-dependent diabetes mellitus (NIDDM): and update. *Diabet Med* 1994;11:899-909.
- 14 UK Prospective Diabetes Study Group. UK prospective diabetes study

- (UKPDS) VIII. Study design, progress and performance. *Diabetologia* 1991;34:877-90.
- 15 American Diabetes Association. Implications of the diabetes control and complications trial. *Diabetes* 1993;42:1555-8.
- 16 Boulton A. Diabetes control and complications trial: implications for diabetes care in the UK. *Diabet Med* 1993;10:687.
- 17 Nathan DM, Singer DE, Huxthall K, Goodson JD. The clinical information value of the glycosylated haemoglobin assay. *N Engl J Med* 1984;310:341-6.
- 18 Larsen ML, Horder M, Morgensen EF. Effect of long-term monitoring of glycosylated haemoglobin levels in insulin-dependent diabetes mellitus. *N Engl J Med* 1990;323:1021-5.
- 19 American Diabetes Association. Standards of medical care for patients with diabetes mellitus. *Diabetes Care* 1994;17:616-8.
- 20 Haines A, Hurwitz B, eds. *Clinical guidelines. Report of a local initiative*. London: Royal College of General Practitioners, 1992. (Occasional paper 58.)
- 21 Krans HM, Porta M, Keen H, eds. *Diabetes care and research in Europe: the St Vincent Declaration action program*. Copenhagen: World Health Organisation Regional Office for Europe, 1992.
- 22 Williams G. Management of non-insulin-dependent diabetes mellitus. *Lancet* 1994;343:95-100.
- 23 Stott NCH, Smithers MG, Butler CC, Peters JR. *Audit enhanced, district wide care for people with diabetes in South Glamorgan: 1988-1993 progress report*. University of Wales College of Medicine, 1994.
- 24 Howitt AJ, Cheales NA. Diabetes registers: a grassroots approach. *BMJ* 1993;307:1046-8.
- 25 Higgs ER, Kelleher A, Simpson HCR, Reckless JPD. Screening program for microvascular complications and hypertension in a community diabetic population. *Diabet Med* 1992;9:550-6.
- 26 Neil HAW, Thompson AV, Thorogood M, Fowler GH, Mann JJ. Diabetes in the elderly: the Oxford community diabetes study. *Diabet Med* 1989;6:608-13.
- 27 Day JL, Metcalfe J, Johnson P. Benefits provided by an integrated education and clinical diabetes centre: a follow up study. *Diabet Med* 1992;9:855-9.
- 28 Pickup JC, Crook MA, Tutt P. Blood glucose and glycated haemoglobin measurement in hospital: which method? *Diabet Med* 1993;10:402-11.
- 29 Lester E. The clinical value of glycated haemoglobin and glycated plasma proteins. *Ann Clin Biochem* 1989;26:213-9.
- 30 Vroom VH. *Work and motivation*. New York: Wiley, 1964.
- 31 Locke EA, Shaw KN, Saari LM, Latham GP. Goal setting and task performance: 1969-1980. *Psychol Bull* 1981;90:125-52.
- 32 Deci EL. Effects of externally motivated rewards on intrinsic motivation. *J Appl Psychol* 1971;18:105-15.
- 33 McWhinney IR. *A textbook of family medicine*. New York: Oxford University Press, 1981.
- 34 Rollnick S, Kinnersley P, Stott N. Methods of helping patients with behaviour change. *BMJ* 1993;307:188-90.
- 35 Morris LS, Schulz RM. Medication compliance: the patient's perspective. *Clin Ther* 1993;3:593-605.
- 36 Tuckett D, Boulton M, Olson C, Williams A. *Meetings between experts*. London: Tavistock, 1985.

(Accepted 12 January 1995)

Rethinking Consultants

Time for change in traditional working practices?

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This is the second article in a series on the changing role of hospital consultants

Consultants in Britain are under pressure to change the way they organise their work. Many rely on formal, but unwritten, rules and a culture of "learning by doing." Unlike their counterparts in Sweden, they are often not well integrated into the management systems of their hospitals. The result is wide differences in the NHS workloads of individual consultants and, for a minority, conflicts of interest with their private work. The training received by junior doctors varies because it is largely left to individual consultants. Clinical directorates should provide a more effective mechanism for consultants to influence trust policies and for consultants to implement these policies. Consultants must not only recognise the need for change but also seize the initiative.

Consultants are under pressure worldwide from changing health care technology, patient expectations, and the demands of governments for greater efficiency. In the United Kingdom the government's policy on hospital medical staffing is to increase the level of direct patient care provided by consultants.¹ Many consultants have changed their clinical practices in response to these pressures, but the way in which they organise their work has changed much less. It is based on a long

tradition of medical hierarchies with formal, but unwritten, rules about who should do what and a culture of "learning by doing."

The role of the consultant has two essential characteristics: autonomy and a position as leader of the "consultant firm." Increasingly, both are resulting in significant problems which ought to be addressed.

Consultant autonomy

Consultants carry a heavy burden of responsibility for patient care. They are legally responsible for all aspects of their patients' medical care, irrespective of the extent to which they personally deliver the care. Clinical freedom—the concept that individual doctors must base their decisions about patient care on their own judgment about what is best for the patient—ultimately rests with consultants because all other hospital doctors work in some way under consultant supervision. It is not surprising that consultants have a high status and considerable autonomy.

Until recently consultants were probably the main players in deciding how health care resources are used, but in Britain and in many other countries this role is now being shared with health care purchasing bodies, which have been set up specifically to determine what

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BMJ 1995;310:788-90